

## **ABSTRACT**

This invention provides devices, compositions and methods for determining the concentration of one or more metabolites or analytes in a biological sample, including cells, tissues, organs, organisms, and biological fluids. In particular, this invention provides materials, apparatus, and methods for several non-invasive techniques for the determination of *in vivo* blood glucose concentration levels based upon the *in vivo* measurement of one or more analytes or parameters found in skin.